ABSTRACT OF THE DISCLOSURE

A method of fabricating a MOS transistor with a controllable and modulatable conduction path through a dielectric gate oxide is disclosed, wherein the transistor structure comprises a dielectric oxide layer formed between two silicon plates, and wherein the silicon plates overhang the oxide layer all around to define an undercut having a substantially rectangular cross-sectional shape. The method comprises the steps of: chemically altering the surfaces of the silicon plates to have different functional groups provided in the undercut from those in the remainder of the surfaces; and selectively reacting the functional groups provided in the undercut with an organic molecule having a reversibly reducible center and a molecular length substantially equal to the width of the undercut, thereby to establish a covalent bond to each end of the organic molecule.

\447522_1.DOC